

REMARKS/ARGUMENTS

Claims 1-4 and 6-9 are pending. Claims 1-4, and 6-9 are amended and claim 5 is canceled.

Claims 1-2, 4-5, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Noda et al. (U.S. 5,048,045). Claim 3 is rejected under 35 U.S.C. 103(a) as being anticipated by Noda et al. ('045). Claims 6-8 are rejected under 35 U.S.C. 103(a) as being anticipated by Noda et al. ('045) in view of Noda et al. (U.S. 5,077,749). Applicant respectfully submits that all of the pending claims are patentable over the cited references.

Independent claim 1 includes, among other limitations, "controlling a spatio-temporal uniformity of a pulsed gas laser beam, in which a pulsed electric discharge is brought about in a gas between two electrodes spaced apart and an X-ray preionisation beam is applied to the gas, wherein an axis of the X-ray preionisation beam is substantially in alignment with an axis of the electric discharge;" "producing a lateral intensification of an electric field in the space between the two electrodes to stabilise the electric discharge in time and space;" and "generating an axial intensification of the X-ray beam to compensate for the modifications of an uniformity of the electric discharge resulting from the lateral intensification of the electric field by a progressive mask." Noda 045 does not teach the above language.

First, in Noda 045 a "second capacitor 2 (C_2) [is] charged by the transfer of the electric charge causes main discharging to occur between the main cathode 3 and anode 4. This excites the laser medium (a laser gas), so that a resonator R may emit a laser beam in the direction of an arrow mark L, thus realizing laser oscillation." (Col. 4, lines 39-45, underlining added.). This description simply discloses a discharge between the two electrodes to generate the laser, however, it does not teach "controlling a spatio-temporal uniformity of a . . . laser beam," nor does it teach "compensat[ing] for the modifications of an uniformity of the electric discharge."

Second, Applicant respectfully disagrees with the statement in the Office action that Noda 045 teaches an X-ray beam "wherein an axis of the X-ray preionisation beam is substantially in alignment with an axis of the electric discharge," in col. 3, lines 45-46 and FIG.

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3, part 9. (Office action, page 2, middle paragraph). Rather, as shown in FIG. 3, the transmitted X-ray beams transmitted from the plate 9, which is made from thin film (col. 3, lines 45-46) are perpendicular to the axis of the discharge and not "substantially in alignment with an axis of the electric discharge," as required by claim 1.

Third, Nolan 045 does not teach "producing a lateral intensification of an electric field in the space between the two electrodes to stabilise the electric discharge in time and space." The cited description (col. 5, lines 27-31) teaches a modification of the first embodiment according to FIG. 5. Here, "a saturable inductance 17 is inserted and connected between the second capacitor 2 (C_2) and anode 4 to obtain a fast rise time for the main discharge, thus further improving the laser oscillation efficiency." There is no teaching or suggestion of "producing a lateral intensification . . . to stabilise the electric discharge in time and space," in this cited text, or anywhere in Nolan 045.

Fourth, Nolan 045 does not disclose "generating an axial intensification of the X-ray beam to compensate for the modifications of an uniformity of the electric discharge resulting from the lateral intensification of the electric field." Instead, the cited text (col. 5, lines 59-67) describes "sliding discharge channels 32 are disposed inside a sealed vacuum chamber 11 to form two X-ray generators 30 which are orthogonal to main electrodes 3 and 4." (underlining added.) One skilled in art would readily realize that such an orthogonal configuration is unable to "generating an axial intensification of the X-ray beam to compensate for the modifications of an uniformity of the electric discharge resulting from the lateral intensification of the electric field."

As a result claim 1 is not anticipated by Nolan 045.

Amended independent claim 2 includes, among other limitations, "a mask for applying an X-ray preionisation beam to the gas, the X-ray beam having an axis substantially in alignment with an axis of the electric discharge, wherein at least one of the two electrodes is profiled to comprise two raised lateral portions which allow a lateral intensification of the electric field to be obtained in a region between the two lateral portions, wherein said mask is a progressive mask relative to the X-ray beam to progressively attenuate from a center of the electric discharge to

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edges thereof the X-ray preionisation beam to compensate for lack of uniformity of the electric discharge resulting from the intensification of the electric field at the edges thereof."

As explained above, Nolan 045 does not disclose an "X-ray beam having an axis substantially in alignment with an axis of the electric discharge," a "lateral intensification of the electric field to be obtained in a region between the two lateral portions," or a mask to "compensate for lack of uniformity of the electric discharge resulting from the intensification of the electric field at the edges thereof." Therefore, claim 2 is not anticipated by Nolan 045 either and therefore is also patentable over the cited references.

In short, independent claims 1 and 2 define a novel and unobvious invention over the cited references. Dependent claims 3-4 and 6-9 are dependent from allowable independent claim 2, directly or indirectly and therefore include all the limitations of independent claim 2, and additional limitations therein. Accordingly, these claims are also allowable over the cited references, as being dependent from allowable independent claim 2 and for the additional limitations they include therein.

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is now in condition for allowance, and accordingly, reconsideration and allowance are respectfully requested.

Respectfully submitted,
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